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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,647	12/05/2005	Truls Arnegaard	14.0209-PCT-US	5788

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WesternGeco
Intellectual Property Department
P O Box 2469
Houston, TX 77252-2469

EXAMINER

HUGHES, SCOTT A

ART UNIT	PAPER NUMBER
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3663

MAIL DATE	DELIVERY MODE
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10/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/532,647

Applicant(s)

ARNEGAARD ET AL.

Examiner

Scott A. Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 18-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/17/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election of Group I, species A, and the single species of seismic sources, vibrator sources, and synchronization service in the reply filed on 7/26/2007 are acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 9 and 17-20 are withdrawn from consideration since they are drawn to nonelected species.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "the seismic cable." There is insufficient antecedent basis for this limitation in the claim. Claim 6 depends from claim 1, and claim 1 does not recite a limitation of a seismic cable. Claim 1 recites a line network, but it is unclear if this is the same as the limitation of a seismic cable. If it is the same, it is requested that applicant use consistent terminology in the claims to reduce confusion. For the

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purposes of this action, claim 6 will be examined as though claim 1 requires a seismic cable.

Claims 14-17 recite the limitation "wherein the synchronization service" and depend from claim 13. Although claim 13 recites the limitation of a synchronization service, the claim does not require that the system include a synchronization service. Claim 13 recites that the data collection system administers "at least one of: a synchronization service." Therefore, the synchronization service is not required by claim 13. Claims 14-17 lack an antecedent basis because they require the synchronization service to be present in claim 13 when it does not have to be. Since these claims differ in scope from claim 13 regarding their requirement for a synchronization service, they lack antecedent basis and are indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-5, and 10-13 are rejected under 35 U.S.C. 102(a) as being anticipated by Johnson (Eos Trans. AGU Fall Meeting, 2001).

With regard to claim 1, Johnson discloses a seismic acquisition system (seismic stations and seismic computing system), comprising: a plurality of seismic data sources capable of generating data (seismic stations); at least one data collection system

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(central acquisition computers) utilizing an open network protocol (IP) (Pages 1-2); and at least one line network connecting the data sources to the data collection system and utilizing an open network protocol (IP) (Pages 1-2), the line network including: a plurality of data source nodes at which a portion of the plurality of seismic data sources are respectively attached to the line network (Page 2); and a router for routing data generated by the seismic data sources to the data collection system through the data source nodes in accordance with the open network protocol (Pages 1-2).

With regard to claim 2, Johnson discloses that the router routes data to the seismic data sources (Pages 1-2).

With regard to claim 3, Johnson discloses that each of the data source nodes is assigned at least two respective network addresses under the open network protocol (Pages 1-2).

With regard to claim 4, Johnson discloses at least one additional router for routing data generated by the seismic data sources to the data collection system through the data source nodes in accordance with the open network protocol (Pages 1-2).

With regard to claim 5, Johnson discloses that the data collection system is assigned at least two respective network addresses under the open network protocol (Pages 1-2).

With regard to claim 10, Johnson discloses that the open network protocol includes the Internet Protocol (Pages 1-2).

With regard to claim 11, Johnson discloses a synchronization service.

With regard to claim 12, Johnson discloses that the synchronization service comprises the Network Time Protocol.

With regard to claim 13, Johnson discloses that the at least one data collection system further administers a location mapping service for mapping between network addresses and logical locations of the data collection system, the router, the data source nodes, and the seismic data sources (pages 1-2); and an auto-configuration capability for automatically reconfiguring the network upon removal of any one of the router, the data source nodes, or the seismic data sources, or upon the addition of an additional piece of seismic equipment (Pages 1-2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson as applied to claims 1-5 and 10-13 above, and further in view of Read (4885724).

With regard to claim 6, Johnson does not disclose a land-based seismic cable. Johnson teaches seismic stations, but does not disclose a land-based cable. Read teaches that it is known to use a land based cable with seismic receiver stations that receive seismic and earthquake data (abstract; Fig. 1b). It would have been obvious to

modify Johnson to use a land based seismic cable as taught by Read in order to have a string of sensors to collect data.

With regard to claims 7-8, Johnson does not disclose that the seismic data sources include at seismic sources that are vibrators. Read teaches that seismic sources that are vibrators are known sources used in seismic surveys (abstract; Columns 2-3) (Fig. 1b). It would have been obvious to modify Johnson to include vibrators as seismic sources in order to have sources for seismic prospecting that are economical and that can be programmed to generate desired source waveforms.

Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson as applied to claims 1-5 and 10-13 above, and further in view of Liou (US20020136335)

With regard to claim 14, Johnson does not disclose a synchronization service that comprises the Network Time Protocol. Liou teaches that it is known to use NTP to synchronize devices connected in a network ([0016-0018]). It would have been obvious to modify Johnson to include NTP as the Internet protocol used in order to sync the responses of the different seismic stations to the clock in the central acquisition computers.

With regard to claim 15, Liou teaches that the synchronization service tolerates changes in topology ([0016-0018]).

With regard to claim 16, Johnson discloses that the synchronization service synchronizes the clocks hierarchically ([0016-0018]).

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With regard to claim 17, Johnson discloses that the service tolerates breaks in the attachment between at least one seismic data source and the line network (Page 2).

Conclusion

The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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/Jack W. Keith/
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